

even  $f(-x) = f(x)$   
 odd  $f(-x) = -f(x)$

Identify whether each function is odd, even, or neither.

9)  $f(x) = x^6 + 2x^2$   $f(-x) = (-x)^6 + 2(-x)^2$   
 $= x^6 + 2x^2$  **even**

10)  $f(x) = 7x^5 + 3x^3 - x$   $f(-x) = 7(-x)^5 + 3(-x)^3 - (-x)$   
 $= -7x^5 - 3x^3 + x$  **odd**

11)  $f(x) = -5x^3 - 18$   $f(-x) = -5(-x)^3 - 18$   
 $= 5x^3 - 18$  **neither**

12)  $f(x) = 1/(x^2 - 3)$   $f(-x) = \frac{1}{(-x)^2 - 3} = \frac{1}{x^2 - 3}$  **even**

Graph the function and state whether it is continuous. **it is**

$f(x) = \begin{cases} x^2 - 5 & \text{when } x < -2 \\ x + 1 & \text{when } -2 \leq x < 2 \\ x^2 - 1 & \text{when } x \geq 2 \end{cases}$

x	y
-4	9
-3	4
-2	-1

x	y
2	3
3	8

x	y
-2	-1
-1	0
0	1

x	y
1	2
2	3

13) Find  $f(2)$   $f(2) = 2^2 - 1$   
 $= 3$

14) Find  $f(0)$   $f(0) = 0 + 1$   
 $= 1$

15) Find  $f(-1)$   $f(-1) = -1 + 1$   
 $= 0$

16) Find  $f(x) = 0$

$y = 0$

$0 = x^2 - 5$

$5 = x^2$

$\pm\sqrt{5} = x$

$-\sqrt{5} = x$

$0 = x + 1$

$-1 = x$

$-1 = x$

check on graph

